REMARKS

This amendment submitted in response to the non-final Office Action dated December 22, 2006, is believed to be fully responsive to the points of rejection raised therein.

Claims 1, 10, 12, 13, 22, 24, 25, 34 and 36 have been amended. Claim 9 has been cancelled. Applicant further omitted repeated claim 12 located between claims 24 and 25. Upon entry of the amendments, claims 1-8 and 10-36 will be pending in the present patent application. Applicant respectfully requests reconsideration and allowance of all pending claims in light of the above amendments and following remarks offered in response to the Office Action.

Rejections Under 35 U.S.C. 101

Claims 1-36 have been rejected under 35 U.S.C. 101. Claims 1, 10, 12, 13, 22, 24, 25, 34 and 36 are amended above. No new matter has been added, and support for the amendments can be found, for example, in paragraph [0018], lines 5-10 on page 7, paragraph [0041], lines 11-12 on page 13 and paragraphs [0048] and [0049] on pages 16 and 17 respectively, of the present application. Applicant respectfully submits that Claims 1-8 and 10-36 recite statutory subject matter. Thus, it is respectfully requested that the rejections of claims 1-8 and 10-36 under 35 U.S.C. 101 be withdrawn.

Rejections Under 35 U.S.C. 103

Claims 1-36 were rejected under 35 U.S.C 103(a) as being unpatentable over U.S Patent No. 5,018,069 (hereinafter "Pettigrew) in view of U.S Patent No. 5,727,128 (hereinafter "Morrison") and in further view of U.S Patent No. 5,075,881 (hereinafter "Blomberg"). For a *prima facie* case of obviousness, the Examiner must set forth the differences in the claim over the applied reference, set forth the proposed modifications of the reference, which would be necessary to arrive at the claimed subject matter, and explain why the proposed modification would be obvious.

Applicant respectfully submits that the applied references, either alone or in combination, do not teach, disclose or suggest all the features recited in the independent claims 1, 10, 12, 13, 22, 24, 25, 34 and 36. Specifically, none of the references teach, disclose or suggest a system and method for performing engine baseline modeling comprising an engine baseline modeling component that applies a smoothing algorithm to an initial engine baseline model, wherein applying the smoothing algorithm comprises generating a smoothed effect to reduce effects of the time-varying engine data, and further eliminating the smoothed effect from the initial engine baseline model to generate a detrended engine baseline model. In addition, none of the references teach, disclose or suggest a data segmenting component that segments engine data into a plurality of groups and an engine baseline modeling component that identifies correlated groups of engine data based upon an initial engine baseline model, wherein the engine baseline modeling component further combines data from correlated groups. Furthermore, none of the references teach, disclose or suggest an engine baseline modeling component that identifies segments relating to related engines. Accordingly, the combination of references cannot possibly include these features of the claims, and thus cannot render the claims obvious.

Claims 1, 13, 25 and claims depending therefrom

Blomberg discloses a statistical model that forecasts the workload of an aircraft pilot as a function of objective flight parameters. More specifically, in Blomberg, an aircraft pilot is asked to rate his workload during the course of a real or simulated flight of the aircraft, under defined flying conditions based on flight parameters. The values of the flight parameters are measured and a statistical correlation is established between the values of the workload ratings and the flight parameters to determine an assessment of the workload for the aircraft pilot. (Abstract)

However, the statistical model for forecasting the workload of an aircraft pilot disclosed in Blomberg is not equivalent or even similar to a system and method for performing engine baseline modeling as disclosed in the present patent application.

Furthermore, there is no disclosure, teaching or even a suggestion in Blomberg of a system and method for performing engine baseline modeling comprising an engine baseline modeling component that applies a smoothing algorithm to an initial engine baseline model, wherein applying the smoothing algorithm comprises generating a smoothed effect to reduce effects of the time-varying engine data, and further eliminating the smoothed effect from the initial engine baseline model to generate a detrended engine baseline model.

The engine baseline modeling system and method claimed in the present patent application enhances the quality of the initial engine baseline model by removing time-related deterioration effects in measured engine data. See, e.g., Application, paragraph [0052], lines 20-21. In particular, in the present patent application, the initial baseline model is subjected to a smoothing algorithm to reduce variations in identified trends in the measured/modeled engine data and parameters. Once the initial model has been smoothed, the smoothed effect is then eliminated from the initial baseline model to remove or reduce its effect on the measured residuals. In other words, by smoothing the initial engine baseline model to remove or reduce trend variations, the remaining model represents only deterioration time effects on the measured parameter. Once these effects are isolated, they are removed from the initial model through a process known as detrending to generate a detrended baseline model. See, e.g.. Application, paragraph [0054], lines 7-15.

Applicant has carefully reviewed the material in Figures 6, 10, 20 and Col. 10, lines 43-57, Col. 15, lines 15-67 and Col. 20, lines 49-63 referenced by the Examiner in Blomberg and submits that these sections fail to disclose a system and method for performing engine baseline modeling comprising an engine baseline modeling component that applies a smoothing algorithm to an initial engine baseline model, wherein applying the smoothing algorithm comprises generating a smoothed effect to reduce effects of the time-varying engine data, and further eliminating the smoothed effect from the initial engine baseline model to generate a detrended engine baseline model. Instead, the section (Col. 10, lines 43-57) discloses the transformation of raw ratings to provide an accurate

interpretation of aircraft pilot workload ratings, wherein the transformation takes into consideration external variations caused by a pilot's interpretation of the ratings scale to improve the performance of the model. In addition, this section discloses that the "smoothing" effect of the transformation results in ambiguity if the predetermined or calculated workload is expressed in accordance with a scale. Further, the section (Col. 15, lines 15-27) discloses that raw data is not directly used for model development and hence has to be smoothed prior to use, and the section (and Col. 20, lines 49-63) discloses a procedure to implement an analysis of variance model.

Clearly, there is no disclosure, teaching or even a suggestion in Blomberg of a system and method for performing engine baseline modeling. Further, there is no disclosure, teaching or even a suggestion in Blomberg to a system and method for performing engine baseline modeling comprising an engine baseline modeling component that applies a smoothing algorithm to an initial engine baseline model, wherein applying the smoothing algorithm comprises generating a smoothed effect to reduce effects of the time-varying engine data, and further eliminating the smoothed effect from the initial engine baseline model to generate a detrended engine baseline model. One skilled in the art would therefore conclude that Blomberg appears only to disclose a technique for performing an assessment of the workload of an aircraft pilot by establishing correlations between workload ratings and flight parameter data.

Pettigrew and Morrison similarly fail to teach this recited feature, and indeed, the Examiner did not rely upon either Pettigrew or Morrison for teaching a system and method for performing engine baseline modeling comprising an engine baseline modeling component that applies a smoothing algorithm to an initial engine baseline model, wherein applying the smoothing algorithm comprises generating a smoothed effect to reduce effects of the time-varying engine data, and further eliminating the smoothed effect from the initial engine baseline model to generate a detrended engine baseline model.

Consequently, no combination of the references could render such inventive features obvious. In view of the above-noted distinctions, Applicant submits that claims 1,

13 and 25 are neither the same as, nor in any way taught or suggested by Blomberg, Pettigrew or Morrison taken either singly or in combination. In view of the foregoing deficiencies in the teachings of the prior art, the references cannot establish a *prima facie* case of obviousness of claims 1, 13 and 25. Accordingly, these claims are believed to be clearly patentable over the cited combination. Their reconsideration and allowance is respectfully requested. Dependent claims 2-8, 14-21 and 26-33 depend from presumably allowable independent claims 1, 13 and 25. Accordingly, these claims are believed to be clearly patentable over the cited combination. Their reconsideration and allowance is requested.

Claims 10, 22, 34 and claims depending therefrom

Morrison discloses a process modeling system and method that develops a set of process model inputs for a process model, such as a neural network, for a number of process input variables and process output variables. (Abstract)

However, the process modeling system disclosed in Morrison is not equivalent or even similar to a system and method for performing engine baseline modeling as disclosed in the present patent application. Furthermore, there is no disclosure, teaching or even a suggestion in Morrison to a data segmenting component that segments engine data into a plurality of groups and an engine baseline modeling component that identifies correlated groups of engine data based upon an initial engine baseline model, wherein the engine baseline modeling component further combines data from correlated groups. The engine baseline modeling system and method claimed in the present patent application determines correlations between various types of engine data, and the trends resulting from the correlated data types are combined to reduce the effect of noise in the overall model, while preserving the important characteristics of the results. See, e.g., Application, paragraph [0056], lines 6-9.

Applicant has carefully reviewed the material in Figures 3 & 4 and Figure 5 # 102, 104 &106 and Col. 7, lines 5-67 and Col. 8, lines 57-67 referenced by the Examiner in

Morrison and submit that these sections fail to disclose a data segmenting component that segments engine data into a plurality of groups and an engine baseline modeling component that identifies correlated groups of engine data based upon an initial engine baseline model, wherein the engine baseline modeling component further combines the data from correlated groups. Instead, the section (Col. 7, lines 5-67) discloses the construction of a process model for a process from process variable data using data files that include a measurement for a set of statistical process variables associated with a process and a measurement for a set of output variables associated with a process. Further, this section discloses that the data files or "batch files" may include a set of process variable measurements for a set of measured process variables corresponding to a batch process. The batch files may further include a set of output variable measurements associated with one or more output variables corresponding to the batch process. Further, the section (Col. 8, lines 57-67) discloses a routine for automatically determining an appropriate set of variables for use as inputs and outputs in a process model for a batch process.

Clearly, there is no disclosure, teaching or even a suggestion in Morrison to a data segmenting component that segments engine data into a plurality of groups and an engine baseline modeling component that identifies correlated groups of engine data based upon an initial engine baseline model, wherein the engine baseline modeling component further combines the data from correlated groups. Further, there is no disclosure, teaching or even a suggestion in Morrison that the batch files are used to segment data into a plurality of groups and identify correlated groups of engine data based upon an initial engine baseline model and further combine the data from the correlated groups. One skilled in the art would therefore conclude that Morrison appears only to disclose the use of batch files in the construction of a process model to include measurements for a set of statistical process variables associated with a process and measurements for a set of output variables associated with a process.

Pettigrew and Blomberg similarly fail teach this recited feature, and indeed, the Examiner did not rely upon either Pettigrew or Morrison for teaching a data segmenting

component that segments engine data into a plurality of groups and an engine baseline modeling component that identifies correlated groups of engine data based upon an initial engine baseline model, wherein the engine baseline modeling component further combines the data from correlated groups.

Consequently, no combination of the references could render such inventive features obvious. In view of the above-noted distinctions, Applicant submits that claims 10, 22 and 34 are neither the same as, nor in any way taught or suggested by Morrison, Pettigrew or Blomberg taken either singly or in combination. In view of the foregoing deficiencies in the teachings of the prior art, the references cannot establish a *prima facie* case of obviousness of claims 10, 22 and 34. Accordingly, these claims are believed to be clearly patentable over the cited combination. Their reconsideration and allowance is respectfully requested. Dependent claims 11, 23 and 35 depend from presumably allowable independent claims 1, 13 and 25. Accordingly, these claims are believed to be clearly patentable over the cited combination. Their reconsideration and allowance is requested.

Claims 12, 24, 36 and claims depending therefrom

Pettigrew discloses a diagnostic system for continually monitoring and reporting data reflecting the performance condition of a monitored turbine engine. The diagnostic apparatus senses engine performance related parameters, refers the data to a standard atmosphere condition, and plots values relating to the functions of each engine performance related parameter with respect to other engine performance related parameters. (Abstract).

However, the diagnostic system disclosed in Pettigrew is not equivalent or even similar to a system and method for performing engine baseline modeling as disclosed in the present patent application. Furthermore, there is no disclosure, teaching or even a suggestion in Pettigrew to an engine baseline modeling component that identifies segments relating to related engines. The engine baseline modeling component claimed in the

present patent application is configured to develop baseline models for pairs or groupings of engines. In particular, in the present patent application, baseline models are developed for pairs of engines to improve the accuracy of the model by considering operational conditions and outputs for the paired system as a whole. See, e.g., Application, paragraph [0062], lines 6-12.

Applicant has carefully reviewed the material in Figure 4 #225 and the descriptive text, referenced by the Examiner in Pettigrew, and submits that this material fails to disclose an engine baseline modeling component that identifies segments relating to related engines. Instead the material in Figure 4 #225 discloses a step 225 in which referred engine diagnostic data (REDD) values are plotted with in flight samples to accurately determine the bandwidth necessary for a degree of desired precaution.

Clearly, there is no disclosure, teaching or even a suggestion in Pettigrew to an engine baseline modeling component that identifies segments relating to related engines. Furthermore, and as mentioned above, there is no disclosure, teaching or even a suggestion in Morrison to a data segmenting component that segments engine data into a plurality of groups. Blomberg similarly fails to teach this recited feature, and indeed, the Examiner did not rely upon Blomberg for teaching an engine baseline modeling component that identifies segments relating to related engines.

Consequently, no combination of the references could render such inventive features obvious. In view of the above-noted distinctions, Applicant submits that claims 12, 24 and 36 are neither the same as, nor in any way taught or suggested by Pettigrew, Morrison or Blomberg taken either singly or in combination. In view of the foregoing deficiencies in the teachings of the prior art, the references cannot establish a *prima facie* case of obviousness of claims 12, 24 and 36. Accordingly, these claims are believed to be clearly patentable over the cited combination. Their reconsideration and allowance is respectfully requested.

In view of the remarks and amendments set forth above, Applicant respectfully requests allowance of the pending claims.

Please charge all applicable fees associated with the submittal of this Amendment and any other fees applicable to this application to the Assignee's Deposit Account No. 07-0868.

Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact Applicant's undersigned representative at the telephone number below.

Respectfully submitted,

/Penny A. Clarke/
Penny A. Clarke
Reg. No. 46, 627

General Electric Company
Building K1, Room 3A72
Niskayuna, New York 12309
Telephone: (518) 387-5349
March 20, 2007